

REMARKS

Claims 1 and 3-10 are pending in the application, of which claims 1 and 3-7 were last examined. Claims 8-10 are deemed withdrawn. By this amendment, claim 1 has been amended and new claim 11 has been added.

Applicants believe the amendments made herein add no new matter. Any amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based on prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to be attached thereto. Reconsideration and reexamination of the application is respectfully requested in view of the amendments and the following remarks.

Interview

The courtesy of the Examiner in granting the interview conducted on November 13, 2008 is acknowledged with thanks and appreciation. The interview included a discussion of the claims and the prior art cited in the office action. It was asserted that the invention as claimed does not remove fluorides during the treatment process because the end result is a useful mineral product that does not end up in a landfill while the prior art references extract the fluorides for reuse in a smelting process and treat the residue for disposal in a landfill. Both the Gamson et al. '617 patent and the Snodgrass et al. '740 patent were distinguished on this basis. The Examiner noted that this feature may be included in independent claim 1 and applicants have incorporated that limitation accordingly.

Status of Claims

The Examiner has made final the previous requirement for restriction on the ground that Snodgrass et al. '740 discloses a method treating a spent potliner that is substantially identical to the claimed method of treating the spent potliner in the process as claimed. Applicant maintains that all the claims in the application form a single general inventive concept under PCT Rule 13.1. This is especially so since all claims depend directly or indirectly from claim 1. It is impossible for an invention in dependant claims to claim a different invention from that of the parent claim. All of the elements of claim 1 are common to the claims that depend from it. That Snodgrass et al. '740 is asserted by the Examiner to be substantially identical to claim 1 is thus relevant only to the patentability of the common features, and not to any determination of

distinct inventions among the claims.

In any event, Snodgrass et al. '740 does not disclose a substantially identical invention to that claimed in claim 1, as can be seen in the following discussion.

Rejections under 35 U.S.C. §103

Claims 1 and 3-7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,355,017 to Gamson et al. in view of U.S. Patent No. 4,444,740 to Snodgrass et al.. The rejection is respectfully traversed.

Setting aside the issue of whether or not it would have been obvious to one of ordinary skill to combine the teachings of the Gamson et al. '017 patent and the Snodgrass et al. '740 patent, which assertion is not conceded, the alleged combination does not reach the claimed invention.

Snodgrass et al. '740 discloses the following steps for treating a spent potliner:

- (1) grind the spent potliner to less than 1mm;
- (2) incinerate the ground potliner at 650°C to 850°C to combust most of the carbon (80-95%), destroy cyanides, and limit volatilization of fluorides (<3%);
- (3) leach the residue with water or dilute caustic for 10 minutes to 3 hours;
- (4) separate the solids from the leachate by filtration;
- (5) treat the solid residue with sulfuric acid to neutralize or minimize fluorides for disposal in a landfill;
- (6) precipitate calcium fluoride from the leachate with a calcium compound; and
- (7) mix calcium fluoride with sulfuric acid to generate HF gas for reuse in a smelting process, and generate metal sulfate for disposal.

Gamson et al. '017 discloses the following steps for treating a spent potliner:

- (1) comminute (crush) the spent potliner to 1mm;
- (2) heat the crushed spent potliner to 800°C to 1000°C in a fluidized bed with air, water, and sulfur dioxide to generate hydrogen fluoride (HF);
- (3) extract the HF enriched gas from the bed;
- (4) react the HF gas with feed material to produce fluorine - containing chemicals (e.g., aluminum trifluoride).

The invention of claim 1 requires the following steps for treating a spent potliner:

- (1) crush the spent potliner;
- (2) heat the crushed spent potliner to more than 450°C;
- (3) mix the hot crushed spent potliner with water to create reaction gases and residue;
- (4) burn off the reaction gases;
- (5) mix the residue with water in a ventilated area for weeks to cure; and

(6) blend the cured residue with other chemicals to provide useful products.

There are at least three fundamental differences between the claimed invention and the cited references, either alone or in combination. The first is that in the subject application spent potliners are treated to remove the harmful substances and then blended with other chemicals and minerals to provide a useful mineral product. The method as claimed does not remove fluorides during the treatment process because the end result is a useful mineral product that does not end up in a landfill. In contrast, both cited references disclose only methods for treating spent potliners where the primary purpose is the recovery of fluorine values and the neutralization of the residue so that it can be used as landfill. The whole purpose of the invention of the subject application is that there is no residue that has to be used as landfill. Rather, the residue of a smelter is completely used up in a useful manner. Because Applicants seek to blend and reuse the residue, *important constituents such as fluorines and carbon are kept in the residue* because they have useful roles to play in the ultimate end use of the blended material. Thus, the present invention does not remove the fluorine values as its prime purpose; instead and unlike the cited references, the fluorine values are kept in the residue.

Second, the process of the claimed invention is also specifically concerned with neutralization of the reactive compounds that are a potential source of flammable gases. More specifically, the invention as claimed includes a burning step where reaction gases are burned off. Neither of the cited references discloses nor suggests such a step.

Third, the claimed invention cures the residue by a curing step carried out through a mixing of the residue with water in a well ventilated area for a period of weeks. Nowhere does the Gamson et al. '017 patent or the Snodgrass et al. '740 patent teach or suggest a curing step that takes weeks to cure the residue generated from the mixing step.

The combination of the Gamson et al. '017 patent and the Snodgrass et al. '740 patent, regardless of how they are combined, will not lead one of ordinary skill to a process of treating a spent potliner that does not remove the fluorides. Nor will the cited references lead one of ordinary skill to a process that includes a burning step where reaction gases of the mixing step are burned off. Nor will the cited references lead one of ordinary skill to a curing step where the residue is treated with water in a ventilated area for weeks as called for in claim 1.

The alleged combination would actually teach away from a process that does not remove fluorides because both the Gamson et al. '017 patent and the Snodgrass et al. '740 patent teach

extracting the fluorides. Further, a burning step in either the teaching of the Gamson et al. '017 patent or the Snodgrass et al. '740 patent would volatilize the very HF gases that their references seek to extract.

Given the foregoing, the alleged combination does not reach the invention of claim 1. Because the alleged combination does not reach the claimed invention, claim 1 cannot be said to be obvious I view of the alleged combination, and therefore claims 1 is patentable over the alleged combination. And inasmuch as claims 3-7 depend from claim 1, they are likewise patentable for the same reasons as claim 1.

Moreover, since claims 8-10 and new claim 11 are also dependant upon claim 1, they are patentable over the alleged combination for the same reasons.

CONCLUSION

Applicants submit that all of the claims remaining in the application are allowable over the prior art of record. Nevertheless, Applicants are filing a Request for Continued Examination contemporaneously herewith pursuant to 37 C.F.R. §1.114. Prompt notification of allowability is respectfully requested. If there are any outstanding issues that the Examiner feels may be resolved by way of telephone conference, the Examiner is cordially invited to contact the undersigned to resolve these issues.

Respectfully submitted,

BERNARD JOHN COOPER ET AL.

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By: /Joel E Bair/

Joel E. Bair, Reg. No. 33,356
McGARRY BAIR PC
32 Market Avenue SW, Suite 500
Grand Rapids, Michigan 49503
616-742-3500
jcb@mcgarrybair.com

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